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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,820	12/04/2003	Craig Andrews	LYNN/0169	7460
24945 7590 04/05/2007 STREETS & STEELE 13831 NORTHWEST FREEWAY SUITE 355 HOUSTON, TX 77040			EXAMINER ECHELMEYER, ALIX ELIZABETH	
			ART UNIT	PAPER NUMBER
			1745	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/05/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/727,820

Applicant(s)

ANDREWS, CRAIG

Examiner

Alix Elizabeth Echelmeyer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6-11 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,6-11 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the Amendment filed January 26, 2007.
Claims 1 and 6-11 have been amended. Claims 2-5 and 12-17 have been cancelled.
Claims 1, 6-11 and 18 are pending and are rejected finally for the reasons given below.

Specification

2. The objection to the specification from the Office Action dated September 28, 2006 is withdrawn in light of the amendment filed January 26, 2007.

Claim Objections

3. Claims 2-5 and 12-17 are objected to because the text of cancelled claims should not appear in the claims. See MPEP 714, 37 C.F.R. 1.121(c)(4).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1, 6-11 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Milgate, Jr. et al. (US Patent 6,852,441) in view of Yeager et al. (US Pre-Grant Publication 2002/0177027).

Regarding claim 1, Milgate et al. teach a fuel cell stack having reinforcing members as support frames to restrict stress and minimize strain in the fuel cell frames caused by high internal pressure (column 3 lines 35-63). For fuel cells having a cylindrical frame, the reinforcing member is a cylinder surrounding the outside of the frame. As seen in Figures 1 and 3, the frames are generally planar. The planar components, or cell frames as they are called in Milgate et al., are plastic (column 2 lines 40-63; column 4 line 56).

As for claims 6 and 7, Milgate et al. teach that the reinforcing cylinder is in place to restrict the stress and strain caused by the internal pressure from the fluids required for the operation of the fuel cell (abstract, column 3 lines 35-64). Thus, the fluids in the stack would be pressurized, pressing out against the reinforcing member and placing the member in tension.

With regard to claims 8-10, Milgate et al. teach a plurality of reinforcing rings to help contain fuel cell frames not capable of withstanding internal pressure (column 2 lines 46-54; column 3 lines 6-11). The plurality of bands can reinforce a single cell or a plurality of cells, or a plurality of substacks within a stack.

Milgate et al. teach the reinforced fuel cell system of the instant application but fail to teach that the reinforcing bands comprise polyamide fibers, or that the polymer

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component comprises substantially the same polymer material as the polymer binder, as in claims 1, 11 and 18.

Regarding claims 1 and 11, Yeager et al. teach the use of reinforcing fibers, such as aromatic polyamide fibers, in a variety of conductive components in fuel cells (abstract, [0080]).

As for claim 18, the composition of Yeager et al. includes polysulfone ([0086]). Milgate et al. teach that the polymer components, or cell frames, may be made of polysulfone (column 2 lines 45-46). Thus, the polymer component and the reinforcing member comprise the same polymer material.

Yeager et al. further teach that these materials increase stiffness, toughness, heat resistance and conductivity in the components in which they are used.

It would be desirable to use polyamide fibers as taught by Yeager et al. in the reinforcing bands of Milgate et al. in order to increase stiffness, toughness, heat resistance and conductivity in the bands.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use aromatic polyamide fibers in the reinforcing bands of Milgate et al. as taught by Yeager et al. in order to increase stiffness, toughness, heat resistance and conductivity in the bands.

Response to Arguments

6. Applicant's arguments filed January 26, 2007 have been fully considered but they are not persuasive.

Applicant's arguments with respect to claims 1 and 6-10 have been considered but are moot in view of the new grounds of rejection.

Applicant's arguments with respect to claim 11 have been fully considered but they are not persuasive. Applicant argues that the conductive thermoset composition of Yeager et al. would not be desirable in the combination of Milgate et al. because it is electrically conductive. This argument is not convincing because there is no reason why an electrically conductive element could not be used in reinforcing bands of Milgate et al., especially since, in Applicant's own disclosure, it is stated that "the bipolar plate will not short the electrochemical cell stack when the band is also electrically conductive" (page 4, lines 29-30). Since Applicant has disclosed that electrical properties of the band do not affect the fuel cell, the argument presented is not deemed persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1745

aee


SUSY TSANG-FOSTER
PRIMARY EXAMINER